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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 December 2007</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-14</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 January 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   This communication is responsive to the responses filed on 12/25/2007.

2.   Claims 1-14 are pending.

3.   **Applicant alleges in claim 1**, Krishnamurthi et al. (US Patent

7,164,698) and Paatela (US 6,944,168) does not disclose "suggest module

configurations which have different functions that dedicated to functional

processing", and " processing method for utilizing those modules (for example,

method of transmitting data packets in a device". The examiner relied on the

broadest interpretation for the limitation. Functional processing is not clearly

defined in the claim.

Examiner respectfully disagrees: Krishnamurthi et al. discloses having a network

device comprised of a plurality of modules (column 1 line 56-67)...and

transmitting data to high-speed links (column 2 line 31-35).

4.   **Applicant alleges in claim 2 and 3**, Paatela et al. (US 6,944,168)

does not disclose " the incoming packets are each provided with a header (

forwarding information) in each of a plurality of devices for transmission of

packets among the plurality of functional processor modules". In response to

applicant's argument that the references fail to show certain features of

applicant's invention, it is noted that the features upon which applicant relies (i.e.,

header (forwarding information) in each of a plurality of devices for transmission

of packets among the plurality of functional processor modules) are not recited in

the rejected claim(s). Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See

In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Examiner respectfully disagrees: Paatela et al. discloses having a incoming

packet 1300 including embedded headers (column 21 line 41-49)...thet=y a re

tagged to include the modified output packet ...the output packet 1340 includes

various embedded headers (column 22 line 43-53). It is known in the art that

headers is capable of carrying information pertaining to the destination.

5.   **Applicant alleges in claim 7 and 8** , Paatela et al. (US

6,944,168) does not discloses the " functional processing associated with a

switch". Again, functional processing is not clearly defined in the claims. The

examiner relied on the broadest interpretation for the limitation.

In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant

relies (i.e., functional processing associated with a switch) are not recited in the

rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van

Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6.   **Applicant alleges in claims 9 and 10**, Paatela et al. (US 6,944,168) does not discloses "the determination of the output line and the imparting of the forwarding information necessary for transmission of packets to the output line are performed by a functional processing unit". Yet, again functional processing is not clearly defined in the claims. The examiner relied on the broadest interpretation for the limitation.

7.   **Applicant alleges in claim 11**, Paatela et al. (US 6,944,168) does not discloses "the determination of the output line and the imparting of the forwarding information necessary for transmission of packets to the output line can be performed selectively by performed by the line interface or the functional processing unit (according to the protocol)". Yet, again functional processing is not clearly defined in the claims. The examiner relied on the broadest interpretation for the limitation. In the response to the arguments, admission to Paatela et al. making a determination of the output line and imparting of the forwarding information are performed by the line interface.

 Also, the applicant alleges the headers do not correspond to the forwarding modules of the present invention and thus, are distinct from the Paatela system In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a headers) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8.   **Applicant alleges in claim 12-14,** Paatela et al. (US 6,944,168) does not discloses " a plurality of functional processing units having the same function to perform load balancing".   Yet, again functional processing is not clearly defined in the claims. The examiner relied on the broadest interpretation for the limitation.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a plurality of functional processing units having the same function to perform load balancing) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.,* 383 U.S. 1,

148 USPQ 459 (1966), that are applied for establishing a background for

determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-3 and 7-14 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Krishnamurthi et al. (US patent 7,164,698) in view of Paatela

et al. (US Patent 6,944,168).

With regard to claim 1, Krishnamurthi et al. discloses having a packet

communication device, Krishnamurthi et al. discloses having a network device

100 (packet communication device") that may be a router or switch, it may also

be any other type of network device that processes data packets received from

one or more ingress links (column 2 line 52-63). comprising: a plurality of line

interfaces capable of, reception or transmission of a packet, Krishnamurthi et al.

discloses having a plurality of line interfaces 420A and 420B in fig. 4. in which is

capable of transmission and reception of data packets. a plurafity of ports, to

which said plurality of fine interfaces are connected, and, to which at least one

functional processor to be used in order to perform functional processing on an

incoming packet received by any of said plurafity of fine interfaces, can be

connected as needed; Krishnamurthi et al. further discloses the plurality of line

interfaces are connected to a plurality of ports in fig. 4... alsoprocessing board

410 for processing incoming packets.., the processing board includes a plurality

of preprocessors modules (fig. 3 and column 6 line 11-14).

Krishnamurthi et al. does not disclose having a function item judgment unit for

judging a function item to be required for said incoming packet; Paatela et al.

discloses having a router System 200 in fig. 2 with a ingress processing system

500 ("judgment unit") which performs the necessary lookups, policing, and

editing of the packet.., more specifically the ingress processing system has a

classifier functional block 502, the policer block 504, and the editor functional

block 506 (column 9 line 16-45).

        Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by.

Krishnamurthi et al. with an ingress processing circuit 500 as taught by Paatela

et al. to provide a mechanism that will verify incoming packets.

Krishnamurthi et al. does not disclose having a forwarding information generator

for determining a forwarding port for said incoming packet in accordance with

said function item obtained from judging by said function item judgment unit, and

imparting, to said incoming packet, forwarding information, that is information for

designating said forwarding port, Paatela et al. discloses having a router system

200 in fig. 2 with a editing system 700 ("forwarding information generator") also

referred to as a packet transformation system, also includes a editing processor

714 with editor instructions (column 9 line 59-67) ... the editor instruction are

executed to perform packet .modification and provide packet steering information

(column 10 line 35-40). Paatela et al. further discloses having a packet direction

field 918 (column 12 line 35-49).Paatela et al. also having the results of the

policing and the classifier input in the editing system (column 10 line 1-12). It is

inferred that the editing system 700 determines the destination of a packet

according to the results from the classifier and policing functional blocks (column

9 line 20-21).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with an editing processor 714 implementing packet steering

information into a packet as taught by Paatela et al. to advantageously provide a

mechanism that will transmit packets to their correct destination.

and a forwarding path switching unit for switching a forwarding path when

forwarding said incoming packet among said plurality of ports based on said

forwarding information; Krishnamurthi et al. disclose having a

switching/forwarding module120 switches and forward data packets to the

appropriate data paths.., also the switching/ forwarding module 120 may in clued

hardware/software logic for interrogating data packets (or portions of the packets)

to determine their destination and causing the data packets to be forwarded to

the appropriate data path to a forwarding table (column 3 line 6-12 and fig. 4):

With regard to claim 2, in combination Krishnamurthi et al. and Paatela

et al. teaches the packet communication device recited in claim 1. Wherein by

said function item judgment unit <u>has judged </u>that a plurality of functional

processing is required for said incoming packet," in order to forward said

incoming packets successively to a plurality of ports, to which functional

processors capable of executing <u>said required</u> functional processing required

are connected respectively, plural forwarding information are imparted to said

incoming packet. Krishnamurthi et al. discloses having a network device 100

(packet communication device") which includes a processing board 410 in fig. 4...

the processor board 410 includes a plurality of preprocessing

modules("functional processors") in fig. 3 thereby processing packet received

from line interfaces and then transmitted to the switching/forwarding modules in

fig. 4 (column 6 line 11-15).

However, Krishnamurthi et al. does not disclose having a packet being judged by

said function item judgment unit and plural forwarding information are imparted to

said incoming packet. Paatela et al. disclose having a router system 200 in fig. 2

with a ingress processing system 500 ("judgment unit") which performs the

necessary lookups, policing, and editing of the packet.., more specifically the

ingress processing system has a classifier functional block 502, the policer block

504, and the editor functional block 506 (column 9 line 16-45). Also, Paatela et

al. discloses having a editing processor 714 ("forward information generator")

with editor instructions (column 9 line 59-67) ...the editor instruction are executed

to perform packet modification and provide packet steering information (column

10 line 35-40). Paatela et al. further discloses having a packet direction field 918

(column 12 line 35-49). Paatela et al. also having the results of the policing and

the classifier input in the editing system (column 10 line 1-i2). It is inferred that

the editing system 700 determines the destination of a packet according to the

results from the classifier and policing functional blocks (column 9 line 20-21).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with a ingress processing system 500 ("judgment unit") and

editing processor 714 ("forward information generator") implementing packet

steering information into a packet as taught by Paatela et al. to advantageously

provide a mechanism that will transmit packets to their Correct destination.

With regard to claim 3, in combination Krishnamurthi et al. and Paatela

et al. teaches the packet communication device recited in claim 2. Wherein in

order to forward those incoming packets which have been subjected to said

plurality of functional processing to any of said plurality of fine interfaces, said

forwarding information generator further imparts, to said packet, forwarding

information corresponding to a port, to which the said line interface is connected

for forwarding said incoming packets. Krishnamurthi et al. discloses having line

interfaces 420A and 420B in which receives packets and transmitting them to a

processor board with plurality of preprocessing modules (fig 3 and column 6 line

11- 14). However, Krishnamurthi et al. does not disclose forwarding information

generator further imparts, to said packet, forwarding information corresponding to

a port, to which the forwarding line interface is connected. Paatela et al.

discloses having a router system 200 in fig. 2 with a editing system 700

("forwarding information generator") also referred to as a packet transformation

system, also includes a editing processor 714 with editor instructions (column 9

line 59-67) ... the editor instruction are executed to perform packet modification

and provide packet steering information (column 10 line 35-40). Paatela et al.

further discloses having a packet direction field 918 (column 12 line 35-

49).Paatela et al. also having the results of the policing and the classifier input in

the editing system (column 10 line 1-12). It is inferred that the editing system

700 determines the destination of a packet according to the results from the

classifier and policing functional blocks (column 9 line 20-21).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a line interfaces 420A and 420B in

which receives packets and transmitting them to a processor board with plurality

of preprocessing modules as taught by Krishnamurthi et al. with a editing

processor 714 implementing packet steering information into a packet as taught

by Paatela et al. to advantageously provide a mechanism that will' transmit

packets to their correct destination.

With regard to claim 7, in combination Krishnamurthi et al. and Paatela et al. teaches the packet communication device recited in claim 1 to 6. wherein said functional judgment unit and said forwarding information generator are installed in at least one of said plurafity of fine interfaces; Krishnamurthi et al. discloses having line interfaces 420A and 420B. However, Krishnamurthi et al. does not discloses having a function item judgment unit and said forwarding information generator are incorporated at least in one of said plural line interfaces. Paatela et al. discloses having a ingress processing system 214 ("function item judgment unit") located on a line card in fig.2 ... also there is a editor 314 with the ingress processing system 214 ("function item judgment unit") which provide routing operations (column 8 line 36-47). Paatela et al. further discloses editor 314 ("forwarding information generator") performs routing operations (column 8 line 37-48).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a line interface 420A and 420 B as taught by Krishnamurthi et al. with a ingress prOcess!ng system 214 ("function item judgment unit") with a editor 3121 ("forwarding information generator") located on line cards as taught by Paatela et l. to modularize the routing mechanisms.

With regard to claim 8, in combination Krishnamurthi et al. and Paatela et al. teaches the packet communication device recited in claim 1 to 7. Wherein at least one said functional processor is further provided with said functional

judgment processor and said forwarding information generator. Krishnamurthi et

al. discloses having a processor board 410 ("functional processor") in fig. 4.

However, Krishnamurthi et al. does not disclose having functional judgment

processor having a said forwarding information generator. Paatela et al.

discloses having a ingress processing system 300 ("functional judgment

processor") which performs the necessary lookups, policing, editing of the packet

(column 7 line 45-67)...the editor 314 ("forwarding information generator')

performs routing operations (column 8 line 36-47).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have a processor board 410 ("functional

processor") as taught by Krishnamurthi et al. with a ingress processing system

300 ("functional judgment processor") and the editor 314 ("forwarding information

generator') performs routing operations as taught by Paatela et al. to provide a

more modular design that will perform a dynamic packet transformation for

quality of service.

With regard to claim 9, Krishnamurthi et al. discloses having a packet

communication device, Krishnamurthi et al. discloses having a network device

100 (packet communication device") that may be a router or switch, it may also

be any other type of network device that processes data packets received from

one or more ingress links (column 2 line 52-63).

comprising: a plurality of fine interfaces capable of, reception or transmission of a

packet, Krishnamurthi et al. discloses having a plurality of line interfaces 420A

and 420B in fig. 4. in which is capable of transmission and reception of data

packets one or a plurality of functional processors to be used in order to perform

functional processing on an incoming packet received by any of said plurality of

fine interfaces; a plurality of ports to which said plurality of line interfaces and

said one or plurality I functional processors are connected; Krishnamurthi et al.

further discloses the plurality of line interfaces are connected to a plurality of

ports in fig. 4... also processing board 410 for processing incoming packets...the

processing board includes a plurality of preprocessors modules (fig. 3 and

column 6 line 11-14).

Krishnamurthi et also does not explicitly disclose having a function item judgment

unit for judging a function item to be required for said incoming packet; Paatela et

al. discloses having a router system 200 in fig. 2 with a ingress processing

system 500 ("judgment .unit") which performs the necessary lookups, policing,

and editing of the packet.., more specifically the ingress processing system has a

classifier functional block 502, the policer block 504, and the editor functional

block 506 (column 9 line 16-45).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with a ingress processing circuit 500 as taught by Paateia et

al. to provide a mechanism that will verify incoming packets.

a forwarding information generator for determining a forwarding port for
said incoming packet in accordance with said function item obtained.by judging
by said function item judgment unit, and imparting, to said incoming packet,
forwarding information, for designating said forwarding port; Paatela et al.
discloses having a router system 200 in fig. 2 with a editing system 700
("forwarding information generator") also referred to as a packet transformation
system, also includes a editing processor 714 with editor instructions (column 9
line 59-67) ... the editor instruction are executed to perform packet modification
and provide packet steering information (column 10 line 35- 40). Paatela et al.
further discloses having a packet direction field 918 (column 12 line 35-49).
Paatela et al. also having the results of the policing and the classifier input in the
editing system (column 10 line 1-12). It is inferred that the editing system 700
determines the destination of a packet according to the results from the classifier
and policing functional blocks (column 9 line 20-21).

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Therefore it would have been obvious to one having ordinary skill in the art
at the time of the invention was made to have a network device 100 as taught by
Krishnamurthi et al. with a editing processor 714 implementing packet steering
information into a packet as taught by Paatela et al. to advantageously provide a
mechanism that will transmit packets to their correct destination.

and a functional processor with a forwarding information generation function for

performing functional processing on said incoming packet, determining, as a

forwarding port, a port to which any of said plurality of line interfaces is

connected on of a result of said functional processing, and imparting, to said

incoming packet, forwarding information corresponding to said forwarding port.

Krishnamurthi et al. discloses having a processor board 410 that includes a

plurality of preprocessors modules (column 6 line 11-14)...the processor board

410 includes a sprayer module 340 that selects the data path of the packets..,

the sprayer module 340 contains a plurality of output channels or outputs, each

coupled to one of plurality of data paths to a switching/routing module.., there are

various ways that the sprayer module select a data path ...for example the

sprayer module 340 may use predetermined has algorithm, a fixed pattern,

randomly, or based on some mechanism for load balancing (column 5 line. 17-

35).

With regard to claim 10, in combination Krishnamurthi et al. and Paatela

et al. teaches the packet communication device recited in claim 9. wherein said

function item judgment unit and said forwarding information generator are

incorporated at least in one of said plural fine interfaces, Krishnamurthi et al.

discloses having line interfaces 420A and 420B. However Krishnamurthi et al.

does not discloses having a function item

judgment unit and said forwarding information generator are incorporated at least

in one of said plural line interfaces. Paatela et alo discloses having a ingress

processing system 214 ("function item judgment unit") located on a line card in

fig.2 ...also there is a editor 314 with the ingress processing system 214

("function item judgment unit") which provide routing operations (column 8 line

36-47). Paatela et. al. further discloses editor 314 ("forwarding information

generator") performs routing operations (column 8 line 37-48).

Therefore it would have been obvious to onehaving ordinary skill in the art at the

time of the invention was made to have a line interface as taught by

Krishnamurthi et al. with a ingress processing system 214 ("function item

judgment unit") with a editor 314 ("forwarding information generator") located on

line cards as taught by Paatela et I. to modularize the routing mechanisms.

wherein when a <u>forwarding port</u> cannot be determined, said incoming packet is

forwarded to a port to which said functional processor with said forwarding

information generation function is connected. Krishnamurthi et al. discloses

having a plurality of line interfaces 420A and 420B in fig. 4. However,

Krishnamurthi et al. does not discloses forwarding information generator which is

incorporated in said plural line interfaces. Paatela et al. further discloses having

ingress processing system 214("function item judgment unit") located on a line

card in fig.2 with a editor 314 ("forwarding information generator") performs

routing operations (column 8 line 37-48).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a line interfaces as taught by Krishnamurthi et al. with a editor 314 ("forwarding information generator") performs routing operations as taught by Paatela et al. to provide a more modular design that will transport multiple data streams to and from the line cards.

With regard to claim 11, in combination Krishnamurthi et al. and Paatela et al. teaches the packet communication device recited in claim 10. wherein when said incoming packet conforms to a first predetermined communication protocol, all forwarding ports including a port, to which a fine interface for transmitting said incoming packet to the outside is connected are determined by the line interface which has received said incoming packet, Krishnamurthi et al. discloses having a plurality of line interfaces 420A and 420B in fig 4. However, Krishnamurthi et al. does not discloses having a incoming packet conforms to a first item of communication protocol. Paatela et al. discloses having a incoming packet 1300 which includes various embedded headers including layer-4 user datagram.protocol (UDP) header 1302, a layer-3 Internet Protocol version- 4 (Ipv4) header 1304A, and a layer-2 Ethernet protocol header 1306A column 21 line 41-47). Paatela et al. further discloses having a policing engine 313 performs a variety of functions including ensuring flow conformance to a maximum allowed peak and a contractual obliged committed rate flow (column 8 line 30-35). It is

inferred that the packet with the multiprotocols are policed and transmitted to their destination.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a network device 100 with a plurality of line interfaces transmitting packets as taught by Krishnamurthi et al. with a policing engine 313 that performs policing on incoming packets as taught by Paatela et al. to provide a mechanism that will effectively evaluate the incoming packets and transmit the to their respective ports.

and wherein when said incoming packet conforms to a second predetermined communication protocol, in said functional processor with said forwarding information generation function, a port, to which a fine interface for transmitting said incoming packet to the outside is connected, is determined as a forwarding port. Krishnamurthi et al. discloses having a processor board 410 ("functional processor") and plurality of line interfaces 420A and 420Bfor transmitting packets.However, Krishnamurthi et al. does not discloses incoming packet conforms to a second item of communication protocol which is different from said first item and said functional processor with said forwarding information generation function. Paatela et al. discloses having a incoming packet 1300 which includes various embedded headers including layer-4 user datagram protocol (UDP) header 1302, a layer-3 Internet Protocol version-4 (Ipv4) header 1304A, and a layer-2 Ethernet protocol header 1306A (column 21 line 41-47).

Paatela et al. further discloses having a policing engine 313 performs a variety of

functions including ensuring flow conformance to a maximum allowed peak and a

contractual obliged committed rate flow (column 8 line 30-35). It is inferred that

the packet with the multiprotocols are policed and transmitted to their destination.

Paatela et al. discloses having a router system 200 in fig. 2 with a editing system

700 ("forwarding information generator") also referred to as a packet

transformation system, also includes a editing processor 714 with editor

instructions (column 9 line 59-67) ...the editor instruction are executed to perform

packet modification and provide packet steering information (column 10 line 35-

40).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have line interfaces 420A and 420B as taught

by Krishnamurthi et al. policing a packet with a second protocol and transmitting

the outing packet to the respective port as taught by Paatela et al. to provide a

mechanism that will effectively evaluate the incoming packetsand transmit the to

their respective ports.

With regard to claim 12, Krishnamurthi et al. discloses having a packet

communication device, Krishnamurthi et al. discloses having a network device

100 (packet communication device") that may be a router or switch, it may also

be any other type of network device that processes data packets received from

one or more ingress links (column 2 line 52-63). comprising: a plurality of fine

interfaces capable of, reception or transmission of a packet,; Krishnamurthi et al.

discloses having a plurality of line interfaces 420A and 420B in fig. 4. in which is

capable of transmission and reception of data packets. a plurality of functional

processors capable of performing the same functional

processing on an incoming packet received by any of said plurality of line

interfaces;

a plurality of ports to which said plurality of line interfaces and said plurality of

functional processors are connected; Krishnamurthi et al. further discloses the

plurality of line interfaces are connected to a plurality of ports in fig. 4... also

processing board 410 for processing incoming packets... the processing board

includes a plurality of preprocessors modules (fig. 3 and column 6 line 11-14).

Krishnamurthi et al. does not explicitly disclose having a function item judgment

unit for judging a function item to be required for said incoming packet; and

Paatela et al. discloses having a router system 200 in fig. 2 with a ingress

processing system 500 ("judgment unit") which performs the necessary lookups,

policing, and editing of the packet.., more specifically the ingress processing

system has a classifier functional block 502, the policer block 504, and the editor

functional block 506 (column 9 line 16-45).

        Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with a ingress processing circuit 500 as taught by Paatela et

al. to provide a mechanism that will verify specific incoming packets.

Krishnamurthi et al. does not explicitly disclose having a forwarding information

generator for determining a forwarding port of said incoming packet in response

to said function item judged by said function item judgment unit, and imparting, to

said incoming packet, forwarding information for designating said forwarding port,

wherein when the same address information is imparted to said incoming packet

to be received successively by any of said plurafity of fine interfaces, a port to

which the same functional processor is connected, of said plurality of functional

processors, is fixedly designated as said forwarding port; Paatela et al. discloses

having a router system 200 in fig. 2 with a ingress processing system 500

("function item judgment unit") that receives incoming packets, classifies and

parses the packets according to predetermined criteria such as protocol,

enforces policing functions on the packets(column 9 line 40-45)... editing system

700 ("forwarding information generator") also referred to as a packet

transformation system, also includes a editing processor 714

with editor instructions (column 9 line 59-67) ...the editor instruction are executed

to perform packet modification and provide packet steering information (column

10 line 35- 40). Paatela et al. further discloses having a packet direction field

918 ("address information", column 12 line 35-49). Paatela et al. also having the

results of the policing and the classifier input in the editing system (column 10

line 1-12). It is inferred that the editing system 700 determines the destination of

a packet according to the results from the classifier and policing functional blocks

(column 9 line 20-21).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with a ingress processing system 500 as taught by Paatela

et al. to advantageously provide a mechanism that will transmit packets to their

correct destination.

and a forwarding path switching unit for switching a forwarding path when

forwarding among said plurality of ports based on said forwarding information;

Krishnamurthi et al. disclose having a switching/forwarding module120 switches

and forward data packets to the appropriate data paths.., also the

switching/forwarding module 120 may in clued hardware/software logic for

interrogating data packets (or portions of the packets) to determine their

destination and causing the data packets to be forwarded to the appropriate data

path to a forwarding table (column 3 line 6-12 and fig. 4).

With regard to claim 13, in combination Krishnamurthi et al. and Paatela

et al. teaches the communication device recited in claim 12. Further comprising:

one or plural functional processors capable of functional processing different

from said same functional processing, wherein when it has been judged by said

function item judgment unit that plural types of functional processing are

necessary for said incoming packet, said forwarding information generator

imparts, to said incoming packet, a plurafity of forwarding information

corresponding to a plurality of ports, to which plural types of functional

processors corresponding to functional processing of said plural types are

connected respectively. Krishnamurthi et al. discloses having a processor board

410 ("functional processor") in fig 4. in which includes a plurality of preprocessors

modules (fig. 3) which performs additional processing on the data packets before

the data packets (or portions of the data packets) are sent to the respective

switching/forwarding modules (column 5 line 50-61). However, Krishnamurthi et

al. does not discloses having a function item judgment unit that plural types of

functional processing are necessary for said incoming packet, said forwarding

information generator imparts, to said incoming packet, a plurality of forwarding

information corresponding to a plurality of ports, to which plural types of

functional processors corresponding to functional processing of said plural types

are connected respectively. Paatela et al. discloses having a router system 200

in fig. 2 with a ingress processing system 500 ("function item judgment unit") that

receives incoming packets, classifies and parses the packets according to

predetermined criteria such as protocol, enforces policing functions on the

packets(column 9 line 40-45).:. editing system 700 ("forwarding information

generator") also referred to as a packet transformation system, also includes a

editing processor 714 with editor instructions (column 9 line 59-67) ...the editor

instruction are executed to perform packet modification and provide packet

steering information (column 10 line 35- 40). Paatela et al. further discloses

having a packet direction field 918 ("address information", column 12 line 35-49).

Paatela et al. also having the results of the policing and the classifier input in the

editing system (column 10 line 1-12). It is inferred that the editing system 700

determines the destination of a packet according to the results from the classifier

and policing functional blocks (column 9 line 20-21).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. with a ingress processing system 500 as taught by Paatela

et al. to advantageously provide a mechanism that will transmit packets to their

correct destination.

With regard to claim 14, in combination Krishnamurthi et al. and Paatela

et al. teaches the packet communication device recited in claim 13. wherein said

function item judgment unit further comprises: a function search unit for

searching, <u>based </u>address information imparted to said incoming packet, types of

functional processing required by said incoming packet and a port to which a fine

interface for transmitting said incoming packet after the processing to the Outside

is connected; Krishnamurthi et al. discloses having a networkdevice 100 ("packet

communication device"). However, Krishnamurthi et al. does not discloses having

function item judgment unit further comprises: a function search unit for

searching, on the basis of address information imparted to said incoming packet,

types of functional processing required by said incoming packet and a port to

which a line interface for transmitting said incoming packet after the processing

to the outside is connected. Paatela et al. discloses having a ingress processing

system 300 ("function item judgment unit", column 7 line 45- 47)... the parsing

engine 312 ("function search unit") parse frames received from the preprocessor

310, and generate search keys from data anywhere within the frame. Paatela et

al. further discloses having different packet processing stages (column 8 line 1-

67) and after processing the packet it is dispatched to a switch fabric thereby

connecting the packet to its destination.

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. ingress processing system 300 ("function item judgment

unit") which includes a parsing engine 312 ("function search unit") as taught by

Paatela et al. to provide a mechanism that will distinguish the different data

traffic that enters in the network device.

function item search unit for searching function items of functional

processors connected to said plural ports and a connection number for each

function item; and a port search unit for searching function items of functional

processors to be connected correspondingly to each of said plural ports.

Krishnamurthi et al. discloses having sprayer module 340("port search unit")

which receives packets from framer/deframer module 330 and transmit them

across a plurality of data paths...the sprayer module 340 contains a plurality of

output channels or outputs, each coupled to one of the plurality of data paths to a

switching/routing module (column 5 line 17-35). Also; Krishnamurthi et al.

discloses a processor board 410 with plurality of preprocessors modules

connected to a plurality of switching/forwarding modules in fig. 4 and fig. 3.

Paatela et al. discloses having a the parsing engine 312 ("function search unit")

parse frames received from the preprocessor 310, and generate search keys

from data anywhere within the frame (column 8 line 9-13).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a processor board 410 with

plurality of preprocessors modules and sprayer module 340 as taught by

Krishnamurthi et al. along with a parsing engine 312 ("function search unit") as

taught by Paatela et al. to provide a mechanism that will accurately connect

ports.

12.   **Claims 4-6** are rejected under 35U.S.C. 103(a) as being unpatentable

over Krishnamurthi et al.(US patent 7,164,698) in view of Paatela et al. (US

patent 6,944,168) as applied to claim 2 or 3 above, and further in view of Yoon et

al. (US Patent 7,006,504).

With regard to claim 4, in combination Krishnamurthi et al. and Paatela et al.

teaches the packet communication device recited in claim 2 or 3. Further

comprising a forwarding information efiminator for efiminating, after said

incoming packet is forwarded to a predetermined port on the basis of said

forwarding information, fo.rwarding information corresponding to said port from

forwarding information added to said incoming packet. Krishnamurthi et al.

discloses having a network device 100 (packet communication device") with line

interfaces 420A and 420B in which transmit and receives packets (fig. 4 and

column 6 line 11-49). However, Krishnamurthi et al. does not discloses having a

forwarding information eliminator for eliminating, after said incoming packet is

forwarded to a predetermined port on the basis of said forwardir)g information,

forwarding information corresponding to said port from forwarding information

added to said incoming packet. Yo0n et alo discloses having a connection

terminating procedure of the VC merging apparatus.., also removing the egress

information ("forwarding information") from the lookup memory (column 11 line

26-33) after the connections have been made. Yoon et al. also discloses having

forwarding information added to incoming packets (column 7 line 7-11). It is

inferred that after packet with forwarding information are transmitted the former

information is deleted.

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 (packet

communication device") as taught by Krishnamurthi et al. with a connection

terminating procedure Yoon et al. to provide a dynamic routing mechanism.

With regard to claim 5, in combination Krishnamurthi et al. and Paatela et al. teaches the packet communication device recited in claim 2 or 3. The packet communication device according to Claim 2 or 3, wherein as said incoming packet is successively forwarded on the basis of said forwarding information, said forwarding information generator further imparts, to said incoming packet, subsequent forwarding information for designating in said forwarding information which information concerning the subsequent forwarding destination is, Krishnamurthi et al. discloses having a line interfaces 420A and 420B in which packets are transmitted and received (fig.4). However, Krishnamurthi et al. does not disclose having forwarding information generator further imparts, to said incoming packet, subsequent forwarding information for designating in said forwarding information which information concerning the subsequent forwarding destination is. Paatela et al. discloses having a ingress processing system 214 ("function item judgment unit") located on a line card in fig.2 ... also there is a editor 314 with the ingress processing system 214 ("function item judgment unit") which provide routing operations (column 8 line 36-47). Paatela et al. further discloses editor 314.(!'forwarding information generator") performs routing operations (column 8 line 37-48).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a line interface 420A and 420 B as taught by Krishnamurthi et al. with a ingress processing system 214 ("function item judgment unit") with a editor 314 ("forwarding information generator") as

taught by Paatela et I. to provide a mechanism that will seamlessly route packets

to their destination.

Krishnamurthi et al. does not discloses having a forwarding information renewal

unit for renewing, after said incoming packet is forwarded to a port to be

designated in said forwarding information and said subsequent forwarding

information, said subsequent forwarding information. Yoon et al..discloses

deleting registration on the ingress connection, the registration on the egress

connection is deleted from an egress connection table (column 13 line 32-34). It

is inferred that that after a connection has been made the connection is

terminated and all the forwarding information in the registration is deleted.

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. that deletes registration on the ingress connection, the

registration on the egress connection is deleted from an egress connection table

as taught by Paatela et al. to provide a mechanism that will release all the

connection information for a particular communication session.

With regard to claim 6, in combination Krishnamurthi et al., Paatela et al.

and Yoon et al. teaches the packet communication device recited in claim 5.

Wherein said forwarding information and said subsequent forwarding information

will be erased before said incoming packet is outputted to the outside from any of

said p/ura/ity of fine interfaces. Krishnamurthi et al. discloses having a plurality of

line interfaces 420A and 420B in fig. 4. However, Krishnamurthi et al. does not

disclose forwarding information

and said subsequent forwarding information will be erased before said incoming

packet is outputted to the outside from any of said plurality of line interfaces.

Yoon et al. discloses while the egress connection is being establish, it should be

deleted, respectively (column 13 line 27-31)... deleting registration on the

ingress connection, the registration on the egress connection is deleted from an

egress connection table (column 13 line 32-34).

Therefore it would have been obvious to one having ordinary skill in the art

at the time of the invention was made to have a network device 100 as taught by

Krishnamurthi et al. that deletes registration on the ingress connection, the

registration on the egress connection is deleted from an egress connection table

as taught by Paatela et al. to provide a mechanism that will release all the

connection information for a particular communication session.

13.   THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to DeWanda Samuel whose telephone number

is (571) 270-1213. The examiner can normally be reached on Monday-

Thursday 8:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The

fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

                                                        /Ricky Ngo/
                                                        Supervisory Patent Examiner, Art
                                                        Unit 2616

DeWanda Samuel
02/29/2008